

# Focus on Awareness And Communications Between Providers And Patients Around Zika Virus Infection

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## Summary

*Prenatal Zika virus infection is linked to severe birth defects including microcephaly, hearing/vision problems, and other abnormalities.*

*Results from our 2016 survey of recent mothers show that most were aware pregnant women should not travel to areas with risk of Zika, but the majority of those who did travel to these risk areas were not tested for Zika during their pregnancy and may not be aware of their status.*



## Background

Zika virus was first discovered in 1947 and is named after the Zika Forest in Uganda. In 1952, the first human cases of Zika were detected and since then outbreaks of Zika have been reported in tropical Africa, Southeast Asia, and the Pacific Islands. More recent outbreaks include Yap Island in 2007 and French Polynesia in 2013. Increased rates of a birth defect called microcephaly, a sign of incomplete brain development, among newborns in Brazil in late 2015 prompted the initiation of the Zika Pregnancy Registry (ZPR) in 2016 by the Centers for Disease Control and Prevention (CDC) to better understand the virus' impact on health outcomes.

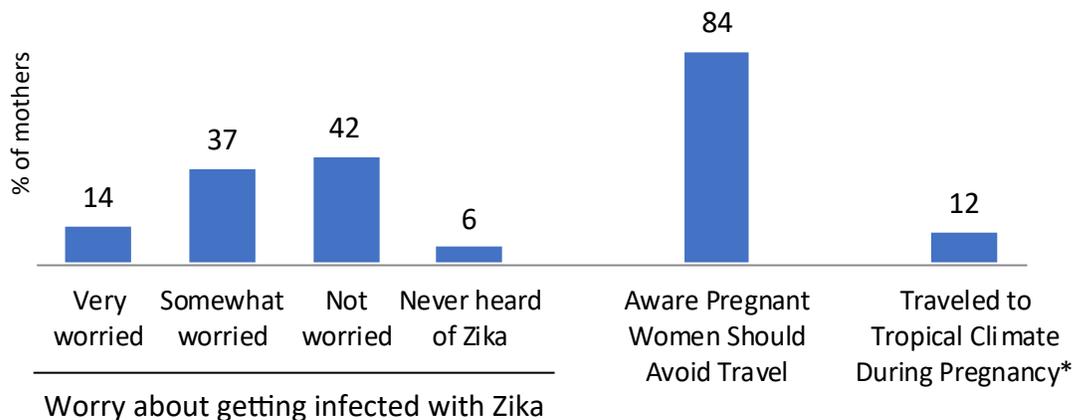
Zika can be transmitted through mosquito bites, through pregnancy from mother to fetus, via sexual contact, or by blood transfusion (CDC, 2017). Mosquitos of the *Aedes aegypti* species are responsible for most mosquito to human Zika virus transmission, but this species is not commonly found in Maryland. Travel-related exposure poses the greatest risk of Zika transmission for Maryland residents followed by sexual contact with an infected individual. Countries with a risk of mosquito to

human Zika infection include tropical climate areas which should be avoided by pregnant women, and men and women trying to become pregnant. A map of the Zika affected countries is available on CDC's website. Most infections are asymptomatic; however, those with symptoms may experience rash, fever, arthralgia, and/or conjunctivitis (red eye).

Zika has been linked to neurological disorders such as Guillian-Barré Syndrome and severe pregnancy complications like microcephaly, limb contractures, and other abnormalities in newborns. Therefore, CDC recommends that pregnant women avoid travel to Zika affected areas.

In addition to the initiation of the ZPR, CDC added supplemental questions concerning Zika to the 2016 Maryland Pregnancy Risk Assessment Monitoring System (PRAMS) survey. This survey, conducted during March - July 2016, asked recent mothers about their concerns around Zika virus during pregnancy. The survey included 12 questions about Zika which are listed at the end of this brief. The data in this brief describes Zika awareness among recently pregnant mothers in Maryland and prenatal health behaviors related to Zika virus concerns.

**Figure 1. Zika Concerns and Awareness Among Recent Mothers, Maryland, March-July 2016**



\*includes partner

Results from the survey show most Maryland mothers (84%) were aware of recommendations to avoid travel to areas with Zika risk, but more than forty percent (42%) of mothers were “not at all worried” about getting infected with Zika and another six percent had “never heard of Zika” (Figure 1). Fourteen percent of mothers were “very worried” about getting infected with Zika during their pregnancy. Twelve percent of mothers reported themselves or their partner traveled to or lived in a tropical climate during their pregnancy. The tropical climate areas most frequently listed among those who traveled during pregnancy were located in the Caribbean (37%) and Central America (20%).

The CDC recommends health care providers discuss the risks of Zika virus with pregnant women who report living in or travelling to Zika affected areas during their pregnancy. Table 1 describes the characteristics of mothers who were counselled by their provider and those who received a prenatal Zika test. Overall, nearly half of mothers (49%) reported their healthcare provider counseled them about Zika risks during their pregnancy. Sixty-three percent of mothers who were very worried about Zika infection received counselling by their healthcare provider. Sixty-nine percent of mothers who reported themselves or their partner lived or traveled to a tropical climate area during pregnancy were counselled on Zika risks by their healthcare provider.

Nine percent of mothers received a prenatal Zika test. The percentage of mothers who received a Zika test was higher among Hispanics (21%), mothers with less than 12 years of education (33%), and among those who initiated prenatal care after the 1st trimester (21%). An estimated four percent of mothers with private insurance coverage were tested for Zika.

Of the mothers who reported travel to a tropical climate area during their most recent pregnancy 87% did not receive a Zika test. Most of these mothers had 13 or more years of education (85%), were aware of the travel advisory (85%), did not use a condom during pregnancy (82%), were counseled by their healthcare provider (65%), and were “somewhat” or “very worried” about Zika infection (55%) (Figure 2).

These results suggest that although pregnant women are aware of the risks of Zika, even among those who travel to high risk areas and have access to care, sufficient testing was not conducted. Testing should be performed on all symptomatic pregnant women who travel to areas with risk of Zika to rule out any infections. As public health attention on Zika wanes, it is important that awareness of the virus’ impact to infant and early childhood developmental health is increased. These supplemental PRAMS questions suggest a need to direct these messages to highly educated mothers with access to private healthcare providers.

**Table 1. Percentage of mothers receiving Zika Counseling and a Prenatal Zika Test, Maryland, March-July 2016**

	Health Care Provider Counseling	Received Prenatal Zika Test
<b>Total</b>	49	9
<b>Race/ethnicity<sup>§</sup></b>		
White non-Hispanic	46	3
Black non-Hispanic	50	13
Hispanic	51	21
Other non-Hispanic	52	*
<b>Maternal age</b>		
17-24 years	45	14
25-34 years	48	9
35-47 years	53	*
<b>Maternal education<sup>§</sup></b>		
<12 years	44	33
12 years	44	18
13+ years	51	4
<b>Insurance coverage at delivery<sup>§</sup></b>		
Private	50	4
Medicaid	42	14
Other	69	31
<b>Trimester prenatal care (PNC) began<sup>§</sup></b>		
1st	49	7
2nd, 3rd, or no PNC	47	21
<b>Used condom during pregnancy</b>		
No	46	7
Yes/abstained from sex	60	15
<b>Aware of recommendation to avoid travel</b>		
No	36	*
Yes	50	8
<b>Worry about getting infected with Zika<sup>†</sup></b>		
Very worried	63	19
Somewhat worried	57	5
Not at all worried	37	10
<b>Mother or partner lived or traveled to tropical climate during pregnancy<sup>†</sup></b>		
No	46	9
Yes	69	13

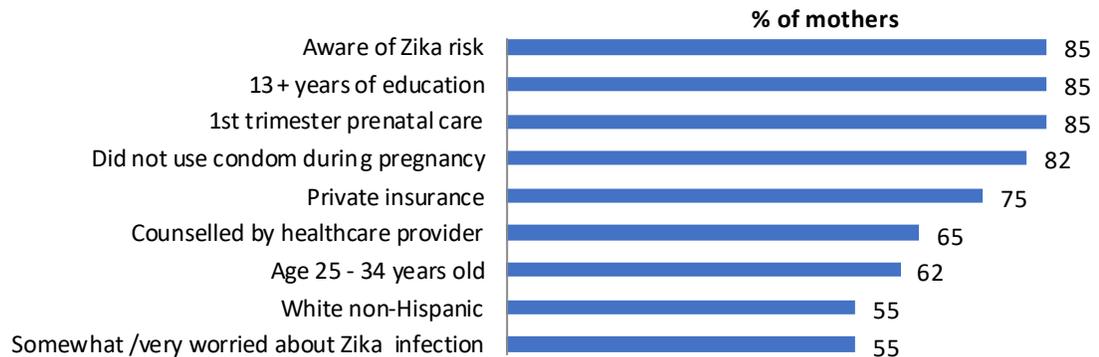
Weighted percentages shown.

\*suppressed due to less than 5 responses.

† Statistically significant difference in counseling rates (p<0.05)

§ Statistically significant difference in testing rates (p<0.05)

**Figure 2. Mothers who traveled to tropical climate during pregnancy but were not tested for Zika**



## PRAMS Supplemental Zika Questions

Z1. During your most recent pregnancy, how worried were you about getting infected with Zika virus? Very worried \_\_\_ | Somewhat worried \_\_\_ | Not at all worried \_\_\_ | I had never heard of Zika virus during my most recent pregnancy (Go to #Z5)

Z2. At any time during your most recent pregnancy, did you talk with a doctor, nurse, or other health care worker about Zika virus?

No \_\_\_

- Yes, a health care worker talked with me without my asking about it
- Yes, a health care worker talked with me, but only AFTER I asked about it

Z3. During your most recent pregnancy, did you get a blood test for Zika virus? No \_\_\_ Yes \_\_\_

The next questions are about travel during your most recent pregnancy.

Z4. During your most recent pregnancy, were you aware of recommendations that pregnant women should avoid travel to areas with Zika virus? No \_\_\_ Yes \_\_\_

Z5. At any time during your most recent pregnancy, did you live or travel outside the 50 United States? No \_\_\_ (Go to #Z9) Yes \_\_\_

Z6. When did you live or travel outside the 50 United States during your most recent pregnancy and for how long? It may help to use a calendar. If you can't remember the exact date, please just write down the month and year. If you took more than 2 trips, please fill in the information below for the FIRST two trips during your most recent pregnancy.

Trip Number 1:  
Location (country or territory):  
First day of trip: \_\_\_ Length of stay (# days): \_\_\_

Trip Number 2:  
Location (country or territory):  
First day of trip: \_\_\_ Length of stay (# days): \_\_\_

Z7. Did the place you lived in or travelled to have a tropical climate? These tend to be hot and humid places.  
No \_\_\_ (Go to #Z9) Yes \_\_\_

Z8. How often did you do things to try to avoid mosquito bites while you were living in or traveling to the places you listed above? Some things that people do to avoid mosquito bites include wearing long-sleeved shirts and long pants, using mosquito repellent, and staying inside places with air conditioning or screened windows and doors.

Every day \_\_\_ | Some days \_\_\_ | Never \_\_\_ | There were no mosquitos \_\_\_

The next questions are about your husband or any male partner.

Z9. At any time in the 6 months before your most recent pregnancy or during your pregnancy, did your husband or any male partner live or travel outside the 50 United States?  
No \_\_\_ (Go to #Z11) Yes \_\_\_

Z10. Did the place your husband or any male partner lived in or travelled to have a tropical climate? These tend to be hot and humid places. No \_\_\_ Yes \_\_\_ I don't know \_\_\_

Z11. During your most recent pregnancy, how often did you use condoms when you had sex with your husband or any male partner? Every time \_\_\_ (Go to end) | Sometimes \_\_\_ | Never \_\_\_ | I didn't have sex during my pregnancy \_\_\_ (Go to end)

Z12. What were your reasons for not using condoms during your most recent pregnancy?

- I didn't think I needed to use condoms during pregnancy
- I didn't know you can get Zika virus from having sex
- I didn't think my husband or male partner had Zika virus
- I was not worried about getting Zika virus
- I didn't want to use condoms
- My husband or male partner didn't want to use condoms
- Other \_\_\_> Please tell us:



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## PRAMS Methodology

Data included in this report were collected through the Pregnancy Risk Assessment Monitoring System (PRAMS), a surveillance system established by the Centers for Disease Control and Prevention (CDC) to obtain information about maternal behaviors and experiences that may be associated with adverse pregnancy outcomes.

In Maryland, the collection of PRAMS data is a collaborative effort of the Maryland Department of Health and the CDC. Each month, a sample of approximately 200 Maryland women who have recently delivered live born infants are surveyed by mail or by telephone, and responses are weighted to make the results representative of all Maryland births.

This report is based on the responses of 373 Maryland mothers who delivered live born infants between late March and late July 2016 and were surveyed two to six months after delivery.

## Limitations of Report

PRAMS data are retrospective and therefore subject to recall bias. It is also based on the mother's perception of events and may not be completely accurate.

This report presents only basic associations between maternal factors and awareness of Zika virus. Unexamined inter-relationships among variables are not described and could explain some of the findings in the report.

## Resources

Centers for Disease Control and Prevention Zika Virus  
<https://www.cdc.gov/zika/index.html>

Centers for Disease Control and Prevention Zika Virus Pregnancy  
<https://www.cdc.gov/zika/pregnancy/index.html>

Map of Countries with Zika Risk  
<https://www.nc.cdc.gov/travel/page/zika-travel-information>

Maryland Department of Health Zika Information  
<https://phpa.health.maryland.gov/pages/zika.aspx>



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